Coarse Integral Imaging with Interleaved Elemental Lenses

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https://visual-media-lab.github.io/en/index.html

Features

① **Focus apart from the display surface**
Integral imaging with coarse elemental lenses generates a real image or a virtual image of the screen, which enables expression of 3D image far away from the display surface.

② **Smooth motion parallax in horizontal and vertical directions**
Integral imaging provides both horizontal and vertical parallax. By using interleaved elemental lenses, smooth motion parallax is provided by the blending effect.

③ **Reduction of vergence-accommodation conflict**
By placing layered panels behind the elemental lens array, natural focal effect is realized with the help of volumetric imaging technology.

Technology

Conventional integral imaging uses a fine fly-eye lens whose elemental lens is perceived as one pixel. Coarse integral imaging uses a coarse fly-eye lens so that multiple pixels are observed through each elemental lens, which generates a real image or a virtual image of the display panel. By using interleaved Fresnel lenses where the width of elemental prisms changes gradually, discontinuity of image due to the coarseness of lens array becomes indistinct. When multiple projection-type display panels with high transmittance are layered, layered real image or virtual image without moiré is formed, which enables integral imaging with volumetric features.
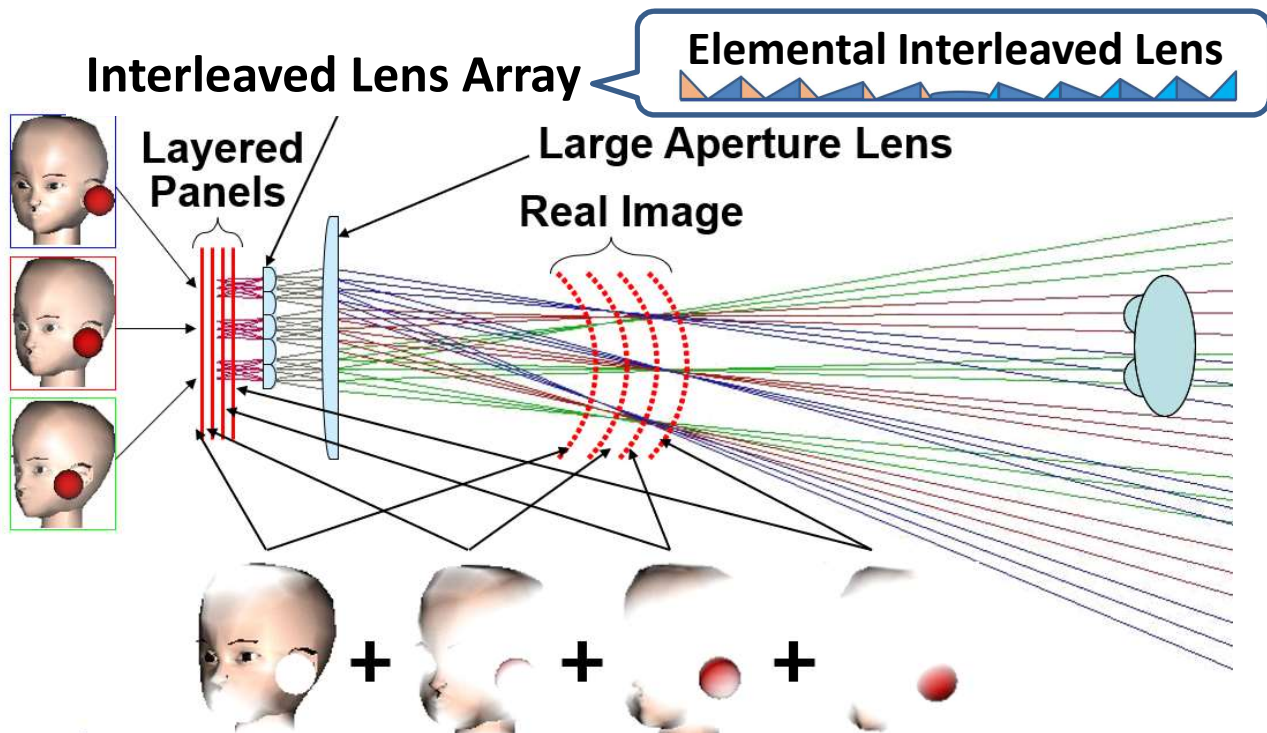
Coarse Integral Volumetric Imaging (Real-Image Type)